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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,721	08/15/2001	Max Douglas Oyler	9D-DW-19866	1672
7590	08/27/2004		EXAMINER	
John S. Beulick Armstrong Teasdale LLP One Metropolitan Sq., Suite 2600 St. Louis, MO 63102			WILKENS, JANET MARIE	
			ART UNIT	PAPER NUMBER
			3637	

DATE MAILED: 08/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/930,721	OYLER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Janet M. Wilkens	3637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 06 May 2004.  
 2a) This action is FINAL.                            2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-5 and 7-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 and 7-21 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date. \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: Attachments A & B

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 8-10, 14, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes et al. Hughes teaches an outer door panel (Fig. 1; see Attachment B) for a dishwasher comprising: a frame (1) with lateral sides (2), an outer surface (3) extending from the frame and including a bowed portion (5) and an angled recessed control panel (4) extending from the outer surface and between the lateral sides. The outer surface extends between the control panel and top edge of the frame (6). Furthermore, the outer door panel is attached to an inner panel (7).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-5, 7, 11-13, 16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al in view of Cracraft et al. As stated above, Hughes teaches the limitations of claims 1, 2, 8-10, 14, 15, and 17, including a door panel having an outer surface with a recessed control panel. For claims 3, 5, 11, 12, 16, 19 and 21, Hughes fails to teach that the panel includes a cutout with an escutcheon therein. Cracraft teaches an appliance (Fig. 1) having a surface which contains a cutout (48) with a plastic escutcheon (14) received therein. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the door panel of Hughes by using a specific control means therein, i.e. using the control panel provided by Cracraft therein instead of the means presently shown, depending on the desired need of the person constructing the panel. Furthermore, these control panels are functional equivalents and either would work equally well in the door of Hughes.

For claims 4, 13, and 20, Hughes fails to teach that the outer surface of the door is specifically made of metal. However, it would have been obvious to one of ordinary skill in the art at the time of the invention make the door out of any of a number of different materials, including metal, depending on the desired need of the person designing/constructing the appliance, e.g. for aesthetic reasons, depending on the material readily available, etc.

For claims 7 and 18, Hughes fails to teach that the outer surface of the door is unitary. However, it would have been obvious to one of ordinary skill in the art at the time of the invention make the door using one member only (combining sections a and b; see Attachment B), depending on the desired

need of the person designing/constructing the door, e.g. for aesthetic reasons, to simplify assembly, etc.

### ***Response to Arguments***

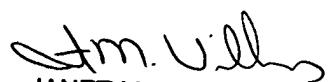
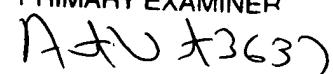
Applicant's arguments filed May 6, 2004 with respect to the reference of Heyde et al have been fully considered and they are persuasive. See attachment A wherein a translation of Heyde et al is provided.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janet M. Wilkens whose telephone number is (703) 308-2204. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lanna Mai can be reached on (703) 308-2486. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wilkens  
August 19, 2004

  
JANET M. WILKENS  
PRIMARY EXAMINER  


Attachment A

PTO 04-4727

French Patent No. 2 626 016

FRONT-LOADING WASHING MACHINE OR TUMBLE DRYER WITH A DRUM  
ROTATING AROUND THE HORIZONTAL AXIS

Patrice Heyde and Jacques Perdu

UNITED STATES PATENT AND TRADEMARK OFFICE  
WASHINGTON, D.C. AUGUST 2004  
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FRENCH REPUBLIC  
 NATIONAL INSTITUTE OF INDUSTRIAL PROPERTY  
 PATENT NO. 2 626 016

Int. Cl.<sup>4</sup>:

D 06 F 37/28  
 58/20

Filing No.:

88 00362

Filing Date:

January 14, 1988

Date of Public Disclosure of the Application:

BOPI "Bulletin" No. 29 of  
 July 21, 1989

FRONT-LOADING WASHING MACHINE OR TUMBLE DRYER WITH A DRUM  
 ROTATING AROUND THE HORIZONTAL AXIS

[Lave-Linge ou Seche-Linge a Tambour Tournant d'Axe Horizontal et a Chargement Frontal]

Inventors:

Patrice Heyde and  
 Jacques Perdu

Applicant:

CIAPEM

The invention concerns a washing machine and/or tumble dryer with a drum rotating around a horizontal axis and front-loading.

The most common type of washing machine or tumble dryer has a generally cylindrical rotating drum with a horizontal axis, in which the laundry is arranged, and which (for washing machines) rotates in a vessel intended to contain the washing or rinsing water. These machines are divided into two major categories: those loaded from the top with a drum having a horizontal axis parallel to the front (front wall) of the machine, and those that load in the front with a drum having a horizontal axis perpendicular to the front. In the latter machines, the door, which is on the front, is generally circular with a vertical articulation.

Nowadays, washing machines and/or dryers are most often installed in kitchens beneath a counter. This is why users more and more prefer front-loading machines, which do not require a hole to be made in this work counter. However, it was found that these machines have drawbacks related to the frontal position of the door. In particular, the visibility into the drum is not

\* [Numbers in the right margin indicate pagination of the original foreign language text.]

satisfactory and the loading position for the user requires movements that can be considered less convenient or bothersome. In addition, their presentation does not always satisfactorily match other machines.

The invention remedies these drawbacks.

It is characterized by the fact that the washing machine and/or dryer of the front-loading type has a drum with a horizontal axis parallel to the front with a door made in its cylindrical part, and by the fact that the front contains a generally rectangular door occupying the entire width, or almost the entire width of the machine, with a horizontal articulation and at a level relative to the drum, so that when the door leaf is in the open position, the drum itself being open, the entire inside volume, or a large part of the volume of this drum, is visible from the top.

With this structure of the machine, visibility into the interior of the drum can be improved with respect to previous front-loading machines and top-loading machines.

In addition, loading and unloading of the laundry can be carried out by introduction or extraction movements in the oblique direction, which is more convenient than the horizontal movements with the conventional front-loading machines or the vertical movements with the top-loading machines. In addition, if as prescribed in the preferred variant, the door leaf of the front, when open, has an essentially horizontal position, this door leaf then represents a support that further facilitates introduction and extraction of the laundry. The door leaf also represents, in the latter case, a protection of the floor in front of the machine from detergent products that could possibly damage the floor.

Since the door of the front of the machine is of the same type as those of the most common ranges and dishwashers, the esthetic arrangement of the kitchen is facilitated.

According to another arrangement of the invention, the product container into which the detergent products are introduced is in the form of a sliding drawer, preferably movable, situated within the machine behind the door of the front panel. With this arrangement, when the user forgets to return the movable drawer to its position, the opening so left is found within the machine and, unlike previous versions, the water runs no risk of escaping to the outside through this opening.

Preferably, the drawer occupies a large part of the width of the machine above the drum, its different compartments being side-by-side and therefore simultaneously apparent to the user. It should be noted that it is an arrangement of the drum with a horizontal axis parallel to the front that permits installation of such a drawer without a substantial increase in height of the machine. In effect, the drawer, if its depth (dimension in the direction perpendicular to the front) is distinctly less than the half-depth of the machine, can be arranged below the upper stop of the vessel.

According to another arrangement of the invention, a washing machine and dryer having the structure just defined are arranged side-by-side and have identical dimensions. In this case, the front doors are at the same height and preferably, as already indicated, can occupy a horizontal position. In very practical fashion, one can then unload the laundry from the washing machine to transfer it into the dryer by resting it on the two doors. The risk that the freshly washed clothing will fall on the floor is thus minimized.

It should be noted that instead of being arranged side-by-side, the washing machine and dryer can be superimposed to save space.

Preferably, also to save space, the outside width of each machine is about 45 cm.

Other characteristics and advantages of the invention will be apparent with a description of some of its variants, this being done with reference to the appended drawings, in which:

- Figure 1 is a cross section of a washing machine according to the invention,
- Figure 1a is a diagram of a door hinge of the washing machine of Figure 1,
- Figure 2 is a frontal perspective view of a washing machine of the type shown in Figure 1,
- Figure 3 is also a perspective view of the same type of washing machine,
- Figure 4 shows a washing machine and a dryer, and
- Figure 5 is a perspective view of a washing machine and dryer arranged side-by-side.

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The household washing machine 10 shown in the figures contains, in known fashion, a cylindrical drum 11 perforated on at least its cylindrical surface, in which the laundry is introduced before operating the machine, and is rotated around a horizontal axis 12 parallel to the vertical front 13 by a motor (not shown) situated in the lower part of the machine.

The drum contains, also in conventional fashion, protrusions 14, in the example on the inside cylindrical surface, permitting agitation of the laundry during rotation of the drum.

The drum 11 itself is arranged in a vessel 15 intended to contain or receive the washing or rinsing water. This vessel is connected by suspension to the body of the machine by elastic means, for example, springs 50 and shock absorbers 51, so that the vibrations resulting from rotation of the drum inside the vessel do not cause problematic vibrations for the body.

The opening 16 for introduction of the laundry to the drum or its extraction from the latter is situated on the side of front 13. This front thus has a door with a door leaf 17' with horizontal articulation 18 of general rectangular shape with a width almost equal to the outside width of the machine, as can be seen, in particular, in Figure 3.

The horizontal articulation axis 18 of the door leaf 17 is at a level lower than the level of axis 12 of the drum. The upper portion 19 of this door leaf 17, in the closed position, reaches almost the level of the upper panel 20 of the body.

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The door leaf 17 is connected to a system (not shown) for compensation of its weight and means of blocking or retractable stops, so as to have, when the door is closed, two positions, one in which it is in the horizontal position, as shown in Figures 1, 2 and 5, and another position, for which the door leaf 17 is shut vertically against the front. The second position further facilitates introduction of laundry into the machine.

The articulation 18 has a shaft cooperating with openings 16 in the vertical risers of the frame of the door leaf 17, in order to permit horizontal movement of the door leaf for blocking or unblocking of the horizontal position. Moreover, the section of the door leaf having articulation 18 is extended, parallel to each vertical riser, by a curved protrusion 61 that terminates opposite the section of door leaf 17 with a pin or bar 62, cooperating with an opening 63 in said vertical risers of the door frame.

The opening 63 has a horizontal port 64 extended on each side by two parts 65 and 66 into the shape of circular arcs.

The door leaf 17 is blocked in the horizontal position by the stop pins 62 against the upper part of the horizontal opening 64. When the door is closed, the pin 62 slides into opening 66. To position the door leaf 17 in the vertical open position, this door leaf is pulled so that the pin 62 arrives at the entry to opening 65. Pin 62 can then be moved into opening 65.

Drum 11 has one or more door leafs or closure panels 21 of the sliding or articulated type.

When the door is open, owing to the positions and dimensions of opening 16 of the vessel, door leaf 17 and drum 11, the average radius 22 of opening 23 of the drum has an oblique direction inclined upward. In this manner, the observer, standing in front of the machine, has an extensive view into the drum, that is, a large part of the internal volume 52 of this drum is visible.

For automatic introduction during operation of the machine of powder or liquid detergents, a drawer 24 is provided having a width (dimension in the horizontal direction) slightly less than the width of the vessel 15, but occupying a large part of the outside width of the machine, and which, for easy access, is situated in the front. In one version (not shown), at least a large part is found at a level lower than that of the upper generatrix 25 of the cylindrical vessel 15.

This drawer 24 is divided into compartments by vertical walls 26 perpendicular to the front wall 13. In this manner, when the user opens drawer 24, he simultaneously has access to all the boxes or reservoirs with products.

If the depth of the drawer is much less than the half-depth of the washing machine, the drawer 24 can be completely arranged beneath the upper generatrix of the vessel, since one saves

front space 55 between the vessel and the front. This configuration permits a vessel of substantial dimensions without increasing the height.

The drawer 24 is concealed by the door leaf 17 of the door when the latter is closed. With this arrangement, if the user forgets to return the movable drawer 24 to its position, water sprays, almost inevitable during operation of the machine, into the cavity 53 left open by drawer 24 cannot escape to the exterior.

Naturally, conventional control devices control dispensing of the products of the drawer 24 into the vessel 15 through a hose 54.

The door leaf 17 of the front door has a thickness in its lower part that increases with distance from articulation 18. The inside surface 27 of this door leaf 17 has a curved shape on this lower part approaching that of a cylinder, so as to form a protrusion 28 that penetrates into the vessel. When the door is closed, this cylinder has the same axis as drum 11, but a larger radius. However, penetration must be limited and the edges of the protrusion must be at a certain distance from the adjacent walls of the vessel 15, so that during operation, the vibrations do not cause shocks of the vessel against the door leaf 17 of the door.

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The shape of the surface 27 of the protrusion 28 of door leaf 17 is favorable to guiding of water sprayed against the inside surface of door leaf 17, toward the bottom of vessel 15. In other words, the protrusion 28 limits the risk of water leaks through the door.

In the depicted variants, the control panel 30 of the machine is found on the door. In the example, it is on the outside. However, it is possible to arrange this panel on the end section of the door leaf. In this case, the display elements, which show in particular, the progress of the cycle, can be on the outside face 31 of door leaf 17.

As a variant, when the control panel is situated on the outside, one can either leave the display on the outside or arrange the display on the end section; in the latter case, the operator, by acting on the controls on the external face of the door, can see directly with his eyes the results of his control actions when the door is half-open.

It should be noted that the arrangement of the controls or displays on the end section of the door leaf is made possible by the height of this door leaf, which is such that the end section is relatively far from the vessel and therefore water vapor and spray.

The door leaf 17, especially owing to the presence of protrusion 28, has a substantial volume, in which all (or part) of the control components and the machine controls are housed: programmer, selector, temperature control, water level control, possibly speed control of drum 11.

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If the control elements of the machine are situated in the door leaf 17, large series production is facilitated. In particular, one can manufacture several varieties of machines, which are distinguished from each other only by different functions, that is, two machines of different

types will only be distinguished by the components in door leaf 17, the other elements of the machine being identical even for the different types.

As can be seen in Figure 3, the general external shape of the machine in conventional fashion is parallelepipedal. Its width is reduced, for example, 45 cm, while retaining high capacity. The height of the machine is preferably such that it can be slid beneath a counter in a so-called integrated kitchen. Feet 35 are also provided beneath the machine to impart to it a sufficient height, so that its upper face 36 is at the level of the upper face of a work counter.

The invention also concerns a dryer that has the same general structure as the washing machine just described. But naturally, such a dryer does not require a vessel or drawer for introduction of products. Such a dryer is, for example, superimposed on a washing machine. In this case, the washing machine and dryer have exactly the same dimensions and the same external appearance.

It is also possible, as shown in Figure 5, to arrange the two machines side-by-side. In the latter case, especially because of the small interval between the adjacent sections of the door leafs, a major advantage is that when the door leafs 17 and 17<sub>1</sub> are open in the horizontal position, extraction of the laundry from the washer 20 to introduce it to the dryer 41 is carried out without risk of falling of laundry articles onto the floor.

In a variant, the two machines are in the same framework. One can also make a single washer-dryer.

The invention is naturally not limited to the described variant. Among the different possible variants, one can mention the fact that the vessel can have an additional door with one or two door leafs.

## Claims

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1. Washing machine or drying machine of the type with a cylindrical drum (11) rotating around a horizontal axis (12) and having a front wall (13) with a door in this wall to introduce and extract the laundry from the drum, characterized by the fact that the axis (12) of rotation of the drum is parallel to the front, the door (21,23) of the drum is situated on the cylindrical part of the latter, and by the fact that the front (13) contains a drum with a general rectangular shape, with a horizontal articulation (18) and a width almost equal to that of the machine, articulation (18) being at a level, so that when the door leaf is in the open position, the entire volume of the drum, or a large part of this volume, is visible from the top.

2. Machine according to Claim 1, characterized by the fact that the arrangements and dimensions of the front door and the drum are such that the average radius (22) passing through the center of the opening (23) of the drum, when this opening faces the opening of the front door, is inclined upward.

3. Machine according to Claim 1 or 2, characterized by the fact that the upper part of the door leaf (17) of the front door (13), in the closed position, is in the vicinity of the upper face (36) of the machine.

4. Machine according to Claim 1, 2 or 3, characterized by the fact that the horizontal axis of articulation 18 of the door leaf 17 of the front door is at a level lower than the level of the axis (12) of rotation of drum (11).

5. Machine according to any of the Claims 1-4, characterized by the fact that the door leaf (17) of the front door (13) has a protrusion (28) on its inside face with a curved surface forming a part of the cylinder with the same axis, when the door is closed, as the axis (12) of drum (11), but with a greater radius.

6. Machine according to any of the preceding claims, characterized by the fact that the door leaf (17) of the front door contains a control and/or display panel (30) for operation of this machine.

7. Machine according to Claim 6, characterized by the fact that the control or display panel is on the outside face of the door leaf (17) of the front door.

8. Machine according to Claim 6, characterized by the fact that the control or display panel is situated on the end section of the door leaf (17) of the front door.

9. Machine according to any of the preceding claims, characterized by the fact that the door leaf panel (17) of the front door houses the assembly of the control and programming components of said machine.

10. Machine of the washing machine type according to any of the preceding claims, containing a movable drawer (24) for detergent products, characterized by the fact that the movable drawer is situated behind the front door.

11. Machine of the washing machine type according to any of the preceding claims and containing a drawer for introduction of detergent products to the vessel (15) of the machine, this vessel having a generally cylindrical shape, characterized by the fact that this drawer, arranged in the front, occupies a large part of the width of the machine with compartments, so that the group of compartments appears simultaneously on opening of the drawer.

12. Machine according to Claim 11, characterized by the fact that the depth of the drawer is much less than the half-depth of the washing machine, and that part of the height of the drawer is below the upper generatrix (25) of vessel (15).

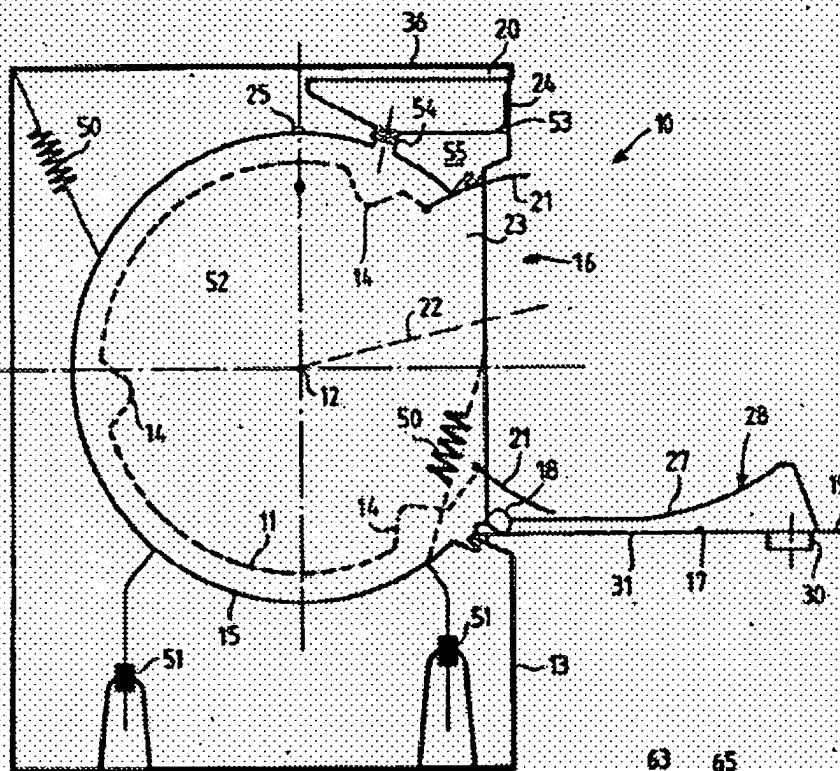
13. Machine according to any of the preceding claims, characterized by the fact that means (60-66) that permit the door leaf to occupy two stable positions when the door is open, one horizontal and the other vertical, preferably against the lower part of the machine front, are connected to the door leaf (17) of the front door.

14. Machine according to any of the preceding claims, characterized by the fact that it contains means of blocking or stopping (62,64) to keep the door leaf (17) horizontal when the door is open.

15. Assembly of two machines according to any of the preceding claims, one being a washing machine and the other a dryer, characterized by the fact that these two machines have identical external shapes and dimensions, the articulations of the two door leafs being both at the same level.

16. Washing machine or dryer of the type with a cylindrical drum (11) rotating around a horizontal axis (12) and having a front wall (13) with the door in this wall to introduce and extract the laundry from the drum, characterized by the fact that the axis (12) of rotation of the drum is parallel to the front, the door (21,23) of the drum is situated on the cylindrical part of the latter, and by the fact that the front (13) contains a door of generally rectangular shape with a width almost equal to that of the machine.

FIG\_1



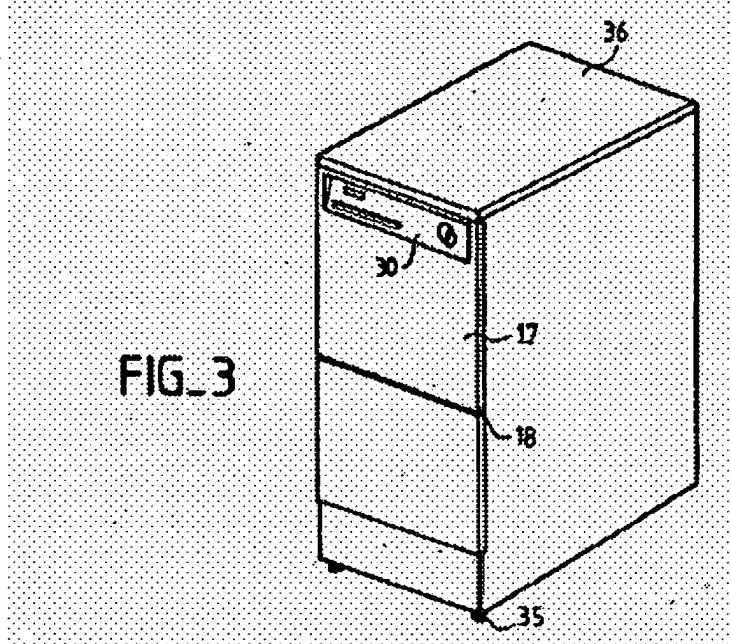
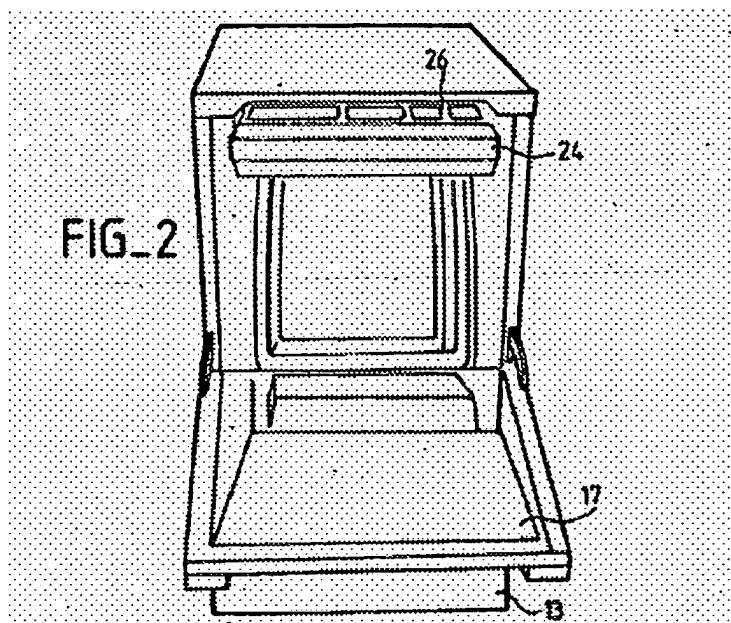


FIG. 4

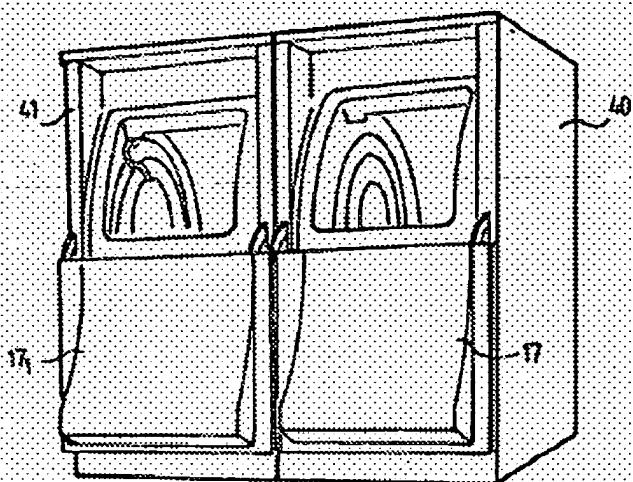


FIG. 5

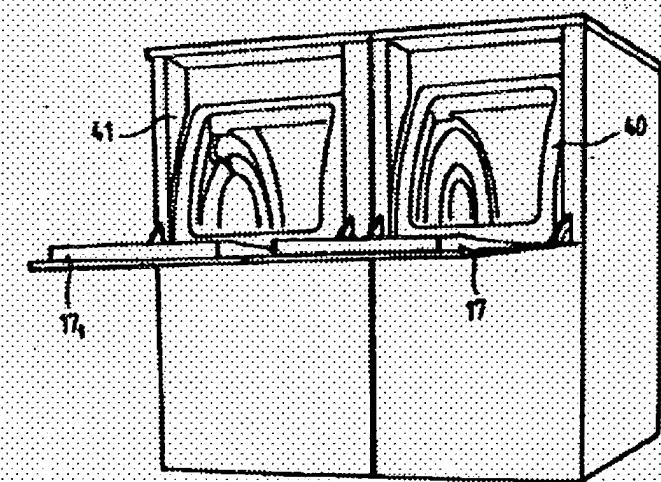


Fig. 1

